

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



LIEBHERR L580 070558-1762

Component Diesel Engine

LIEBHERR 15W40 (--- GAL)

No corrective action is recommended at this time. Resample at the next service interval to monitor.  Sample Number  Image: Client Info  I	RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Date    Client Info    29 Nor 202        Machine Age    Inrs    Client Info    500        Oil Age    Inrs    Client Info    0         Oil Age    Inrs    Client Info    0         Oil Changed    Nor 200    Inrs    Client Info    0        Biter Changed    Nor 200    Inrs    Client Info    0        WEAR    Iron    ppm    AStr05550//sigs    50    14        Wear    ppm    AStr05550//sigs    50         Metal levels are typical for a new component breaking in.    Prom    AStr05550//sigs    50         Silver    ppm    AStr05550//sigs    50         Copper    ppm    AStr05550//sigs    51 <t< th=""><th></th><th></th><th>00101</th><th></th><th>U</th><th></th><th></th><th>-</th></t<>			00101		U			-
Machine Age    Ins    Client Info    S00    number    number      OI (Age    Ins    Client Info    0        Filer Age    Ins    Client Info    Changed     Changed       Filer Changed    Client Info    Changed     Changed       Machine Age    Ins    Client Info    Changed     Changed       OIL Changed    Control    P    Shift/Stifty     R       Mater    pm    Shift/Stifty     R        Model levels are typical for a new component breaking in.    Promaium    pm    Shift/Stifty          Silver    pm    Shift/Stifty	•							
Oil Age    hrs    Client Info    0			hrs					
Filter Age OII Changed Eliter Changed Sample StatusClient Into Changed Client Into000		-						
Oil ChangedClient IntoChangedFile ChangedClient IntoIChangedSample StatusSample StatusNORMALMetal levels are typical for a new component breaking in.IronpmM3/10/81%>500NickelpmM3/10/81%>500NickelpmM3/10/81%>500		-						
Filter Changed  Client Info  Image  Changed  mail    Sample Status  NORMAL  n  n    WEAR  tron  pm  ASTM05169  >100  14  1  -    Metal levels are typical for a new component breaking in.  Tranuum  pm  ASTM05169  >5  C1  -  -    Netal levels are typical for a new component breaking in.  Normal  pm  ASTM05169  >30  00  -  -    Metal levels are typical for a new component breaking in.  Normal  pm  ASTM05169  >30  00  -  -  -    Silver  pm  ASTM05169  >30  00  -  -  -  -    Copper  pm  ASTM05169  >30  10  -		-				Changed		
Sample StatusNORMAWEARIronpmSMD63K8-1014Metal levels are typical for a new component breaking in.ChromiumpmSMD63K8-50NickelpmSMD63K8-50NickelpmSMD63K8-50NickelpmSMD63K8-50		-		Client Info		-		
Chromium    ppm    ASTM 0585(m)    5.5    C1    ····    ····      Nickel    ppm    ASTM 0585(m)    -5.5    0.0    -···    -···      Nickel    ppm    ASTM 0585(m)    -5.5    0.0    -···    -···      Silver    ppm    ASTM 0585(m)    -5.0    0.0    -···    -···      Aluminum    ppm    ASTM 0585(m)    -5.0    1.0    -···    -···      Lead    ppm    ASTM 0585(m)    -5.0    1.0    -···    -···      Copper    ppm    ASTM 0585(m)    -5.0    1.0    -···    -···      Vanadium    ppm    ASTM 0585(m)    -5.0    1.0    -···    -···      Pue content negligible. There is no indication of any contamination in the oil.    pm    ASTM 0585(m)    -60    1.0    -···      Fuel content negligible. There is no indication of any contamination in the oil.    Vice Method    sol.2    NEG    -···    -···      Silver    pm    ASTM 07583'    -5    0.6		Sample Status				NORMAL		
Chromium    ppm    ASTM 0585(m)    5.5    C1    ····    ····      Nickel    ppm    ASTM 0585(m)    -5.5    0.0    -···    -···      Nickel    ppm    ASTM 0585(m)    -5.5    0.0    -···    -···      Silver    ppm    ASTM 0585(m)    -5.0    0.0    -···    -···      Aluminum    ppm    ASTM 0585(m)    -5.0    1.0    -···    -···      Lead    ppm    ASTM 0585(m)    -5.0    1.0    -···    -···      Copper    ppm    ASTM 0585(m)    -5.0    1.0    -···    -···      Vanadium    ppm    ASTM 0585(m)    -5.0    1.0    -···    -···      Pue content negligible. There is no indication of any contamination in the oil.    pm    ASTM 0585(m)    -60    1.0    -···      Fuel content negligible. There is no indication of any contamination in the oil.    Vice Method    sol.2    NEG    -···    -···      Silver    pm    ASTM 07583'    -5    0.6								
$ \begin{array}{ c c c c c c } Nuclear bound on the component obtaining interms of the point of the component obtaining interms of the component obtain of the coll is acceptable for the time in se$	WEAR			( )				
Titanium    ppm    ASTM 25185(n)    0     4      Silver    ppm    ASTM 25185(n)    >3    0        Aluminum    ppm    ASTM 25185(n)    >3    2        Lead    ppm    ASTM 25185(n)    >12    205    6       Copper    ppm    ASTM 25185(n)    >12    205    6       Copper    ppm    ASTM 25185(n)    >12    205    6       Tin    ppm    ASTM 25185(n)    >10         Vanadium    ppm    ASTM 25185(n)    >60    11        Solicon    ppm    ASTM 25185(n)    >60    11        Solicon    ppm    ASTM 25185(n)    >60    11        Glycol    ppm    ASTM 25185(n)    >0    1        Solitario    Ass <td< th=""><th>Metal levels are typical for a new component breaking in.</th><th></th><th>ppm</th><th></th><th></th><th></th><th></th><th></th></td<>	Metal levels are typical for a new component breaking in.		ppm					
Silver    ppm    ASTM D5185m    >3    0        Auminum    ppm    ASTM D5185m    >15    2        Lead    ppm    ASTM D5185m    >10        Lead    ppm    ASTM D5185m    >10        Tin    ppm    ASTM D5185m    >5    1        Vanadium    ppm    ASTM D5185m    >5    1        Fuel content negligible. There is no indication of any contamination in the oil.    Silicon    ppm    ASTM D5185m    >60    11        Fuel content negligible. There is no indication of any contamination in the oil.    Silicon    ppm    ASTM D5185m    >60    11        Still Content negligible. There is no indication of any contamination in the oil.    Silicon    spm    ASTM D5185m    >60    11        Fuel    %    ASTM D5185m    >60    11    1					>5			
Aluminum    ppm    Att 105185m    >15    2        Lead    ppm    ASTM 05185m    >30    10        Copper    ppm    ASTM 05185m    >30    10        Tin    ppm    ASTM 05185m    >5    1        Vanadium    ppm    ASTM 05185m    >5    1        Fuel content negligible. There is no indication of any contamination in the oil.    pm    ASTM 05185m    >60    11        Fuel content negligible. There is no indication of any contamination in the oil.    pm    ASTM 05185m    >60    11        Fuel content negligible. There is no indication of any contamination in the oil.    pm    ASTM 07593*    >5    0.6        Glycol    Water    VW Chethod    >2    NEG        Glycol    Water    Scalar    Visual*    >30    0        Intration								
Lead    ppm    ASTM 05165(m)    >-30    10        Copper    ppm    ASTM 05165(m)    >-52    205        Tin    ppm    ASTM 05165(m)    >-50    1        Vanadium    ppm    ASTM 05165(m)    >-50    11        CONTAMINATION    ppm    ASTM 05165(m)    >60    11        Fuel content negligible. There is no indication of any contamination in the oil.    Potassium    ppm    ASTM 07583    >50    0.66        Water    %    ASTM 07584    >20    REG        Soli %    %    ASTM 07584    >20    REG        Soli %    %    ASTM 07584    >20    12.3        Soli %    %    ASTM 07584    >20    12.3        Name    Asid    Asim 07445    >30    40.5								
Copper    ppm    ASTM D585m    >125    205        Tin    ppm    ASTM D585m    >5    1        Vanadum    ppm    ASTM D585m    >60    10        CONTAMINATION    ppm    ASTM D585m    >60    11        Fuel content negligible. There is no indication of any contamination in the oil.    Potassium    ppm    ASTM D585m    >60    11        Fuel content negligible. There is no indication of any contamination in the oil.    Potassium    ppm    ASTM D784M    >60    10								
Tin    ppm    ASTM D5185(m)    >    1        Vanadium    ppm    ASTM D5185(m)    Image: Comparing the c								
Vanadium    ppm    ASTM D5186/m    O        CONTAMINATION    Silicon    ppm    ASTM D5186/m    >-0    11        Fuel content negligible. There is no indication of any contamination in the oil.    Silicon    ppm    ASTM D5186/m    >-20    2        Water    WC Method    >-0.2    NEG								
CONTAMINATION  Silicon  ppm  ASTM 05186/m  >60  11     Fuel content negligible. There is no indication of any contamination in the oil.  Potassium  ppm  ASTM 05186/m  >20  2     Water  %  ASTM 07593  >5  0.6      Water  %  ASTM 07593  >5  0.6      Glycol  WC Method  >.0  NEG      Nitration  Abs/m  ASTM 07644  >30  0     Nitration  Abs/m  ASTM 07644  >30  0     Nitration  Abs/m  ASTM 07644  >30  0     Sulfation  Abs/m  ASTM 07644  >30  40.5     FUUD CONDITION  Sodium  ppm  ASTM 05185/m  >0  2  REG     Molybdenum  ppm  ASTM 05185/m  >0       Magneses  ppm  ASTM 05185/m   2      Magneses					>5			
Potassium    pm    ASTM 05165(m)    >20    2       Fuel    %    ASTM 05185(m)    >20    1.0       Fuel    %    ASTM 05185(m)    >20    0.6       Water    Water    WC Method    >0.2    NEG       Glycol    WC Method    >0.2    NEG        Soot %    %    ASTM 07844    >3    0        Mitration    Abs/cm    ASTM 07844    >3    0        Soot %    %    ASTM 07844    >3    0        Soot %    %    ASTM 07844    >3    0        Soot %    Rs/sinm    ASTM 07844    >3    0        Souf %    Astm 07844    s3    0         Soufation    Astm 2    Soufation    Astm 05185(m)		vanadium	ppm	ASTM D5185(m)		0		
Fuel    %    ASTM D7593    %    0.6       Water    [water]    WC Method    >.0.2    NEG       Glycol    WC Method    >.0.2    NEG       Soot %    %    ASTM D7593    >.5    0.6       Nitration    Abs/    WC Method    >.0.2    NEG       Sulfation    Abs/    ASTM D7544    >.3    0        Sulfation    Abs/    MSIM D7544    >.30    40.5        Sulfation    Abs/    MSIM D7544    >.30    40.5        Sulfation    Abs/    MSIM D7544    >.30    40.5        Sulfation    Abs/    MSIM D7544    >.02    NEG        Barion    ppm    ASTM D7545    >.02    NEG        Molybdenum    ppm    ASTM D51650    I    1        Mag	CONTAMINATION	Silicon	ppm	ASTM D5185(m)	>60	11		
Fuel% $ASTM D7593^\circ >5$ 0.6WaterIWC Method>0.2NEGIIGlycolWC Method>30IISoot %% $ASTM D7844^\circ$ >30IINitrationAbs/cmASTM D7844^\circ>300.0IINitrationAbs/cmASTM D7624^\circ>2012.3IISulfationAbs/cmASTM D7624^\circ>3040.5IIEmulsified WaterscalarVisual^*>0.2NEGIIFLUID CONDITIONSodiumppmASTM D78551IIBariumppmASTM D7855I1IIMaganeseppmASTM D5185I1IIMagnesiumppmASTM D5185I1IIMagnesiumppmASTM D5185I1IIMagnesiumppmASTM D5185I1IIPhosphorusppmASTM D5185I1IIZincppmASTM D5185I828IIAmagnesiumppmASTM D5185I828IIAmagnesiumppmASTM D5185I828IIAmagnesiumppmASTM D5185I828IIAmagnesiumppm </th <th rowspan="2">Fuel content negligible. There is no indication of any contamination in</th> <th>Potassium</th> <th>ppm</th> <th>ASTM D5185(m)</th> <th>&gt;20</th> <th>2</th> <th></th> <th></th>	Fuel content negligible. There is no indication of any contamination in	Potassium	ppm	ASTM D5185(m)	>20	2		
GlycolWC MethodNEGSoot %%ASTM D7644*>30NitrationAbs/cmASTM D7644*>2012.3SulfationAbs/tmASTM D764*>3040.5SulfationAbs/tmASTM D764*>3040.5EmulsifiedWatescalarVisual*>0.2NEGFLUID CONDITIONSodiumppmASTM D5185m2NEGBoronppmASTM D5185m24BariumppmASTM D5185m24MaganeseppmASTM D5185m1MagnesiumppmASTM D5185m1PhosphorusppmASTM D5185m1434PhosphorusppmASTM D5185m1SulfurppmASTM D5185m1434Astm D5185mppmASTM D5185m1434CalciumppmASTM D5185m1434PhosphorusppmASTM D5185m16855SulfurppmASTM D5185m16858Astm D5185mppmASTM D5185m16858Astm D5185m		Fuel	%	ASTM D7593*	>5	0.6		
Soot %%ASTM D7844'>30 $$ NitrationAbs/cmASTM D7624'>2012.3 $$ SulfationAbs/cmASTM D7415'>3040.5 $$ Emulsified WatescalarVisual*>0.2NEG $$ FLUID CONDITIONSodiumppmASTM D5185/m2 $$ FLUID CONDITIONSodiumppmASTM D5185/m2 $$ BoronppmASTM D5185/m24 $$ $$ BariumppmASTM D5185/m24 $$ $$ MolybdenumppmASTM D5185/m1 $$ $$ ManganeseppmASTM D5185/m1 $$ $$ CalciumppmASTM D5185/m $$ $$ $$ ThrosphoruspfmASTM D5185/m $$ $$ $$ SulfurppmASTM D5185/m $$ $$ $$ MagnesiumppmASTM D5185/m $$ $$ $$ SulfurppmASTM D5185/m $$ $$ $$ SulfurppmASTM D5185/m $$ $$ $$ SulfurppmASTM D5185/m $SulfurppmASTM D5185/m$		Water		WC Method	>0.2	NEG		
NitrationAbs/cmASTM D7624*>2012.3SulfationAbs/cmASTM D7624*>3040.5Emulsified WatescalarVisual*>0.2NEGNEGSodiumppmASTM D5185(m)22FLUID CONDITIONSodiumppmASTM D5185(m)182BoronppmASTM D5185(m)I82BariumppmASTM D5185(m)I24MolybdenumppmASTM D5185(m)I1MaganesiamppmASTM D5185(m)I1CalciumppmASTM D5185(m)I1PhosphorusppmASTM D5185(m)I1434ZincppmASTM D5185(m)I828SulfurppmASTM D5185(m)I828SulfurppmASTM D5185(m)I1872II		Glycol		WC Method		NEG		
SulfationAbs/1mmASTM D7415*>3040.5Emulsified WaterscalarVisual*>0.2NEGFLUID CONDITIONSodiumppmASTM D5185(m)22BoronppmASTM D5185(m)<82BariumppmASTM D5185(m)<24MolybdenumppmASTM D5185(m)<447MaganeseppmASTM D5185(m)<1MagnesiumppmASTM D5185(m)<11PhosphorusppmASTM D5185(m)<1434ZincppmASTM D5185(m)<6855SulfurppmASTM D5185(m)6856SulfurppmASTM D5185(m)6856SulfurppmASTM D5185(m)1872		Soot %	%	ASTM D7844*	>3	0		
Emulsified WatescalarVisual*>0.2NEGFLUID CONDITIONSodiumppmASTM D5185(m)22BoronppmASTM D5185(m)08200BariumppmASTM D5185(m)02400MolybdenumppmASTM D5185(m)047700ManganeseppmASTM D5185(m)100MagnesiumppmASTM D5185(m)090300CalciumppmASTM D5185(m)0668500PhosphorusppmASTM D5185(m)0668500SulfurppmASTM D5185(m)0187200		Nitration	Abs/cm	ASTM D7624*	>20	12.3		
FLUID CONDITIONSodiumppmASTM D5185(m)2The condition of the oil is acceptable for the time in service.BoronppmASTM D5185(m)82BariumppmASTM D5185(m)24 <t< th=""><th></th><th>Sulfation</th><th>Abs/.1mm</th><th>ASTM D7415*</th><th>&gt;30</th><th>40.5</th><th></th><th></th></t<>		Sulfation	Abs/.1mm	ASTM D7415*	>30	40.5		
Boron  ppm  ASTM D5185(m)  82     Barium  ppm  ASTM D5185(m)  24     Molybdenum  ppm  ASTM D5185(m)  24     Manganese  ppm  ASTM D5185(m)  1     Magnesium  ppm  ASTM D5185(m)  1     Magnesium  ppm  ASTM D5185(m)  1     Calcium  ppm  ASTM D5185(m)  1     Phosphorus  ppm  ASTM D5185(m)  1434     Zinc  ppm  ASTM D5185(m)  685     Sulfur  ppm  ASTM D5185(m)  828		Emulsified Water	scalar	Visual*	>0.2	NEG		
Boron  ppm  ASTM D5185(m)  82     Barium  ppm  ASTM D5185(m)  24     Molybdenum  ppm  ASTM D5185(m)  24     Manganese  ppm  ASTM D5185(m)  1     Magnesium  ppm  ASTM D5185(m)  1     Magnesium  ppm  ASTM D5185(m)  1     Calcium  ppm  ASTM D5185(m)  1     Phosphorus  ppm  ASTM D5185(m)  1434     Zinc  ppm  ASTM D5185(m)  685     Sulfur  ppm  ASTM D5185(m)  828		Sodium	nnm	ΔSTM D5185(m)		2		
Barium  ppm  ASTM D5185(m)  24      Molybdenum  ppm  ASTM D5185(m)  47      Manganese  ppm  ASTM D5185(m)  1      Magnesium  ppm  ASTM D5185(m)  1      Magnesium  ppm  ASTM D5185(m)  1      Calcium  ppm  ASTM D5185(m)  1434      Phosphorus  ppm  ASTM D5185(m)  685      Zinc  ppm  ASTM D5185(m)  828      Sulfur  ppm  ASTM D5185(m)  1872								
MolybdenumppmASTM D5185(m)477ManganeseeppmASTM D5185(m)1MagnesiumppmASTM D5185(m)0903CalciumppmASTM D5185(m)1434PhosphorusppmASTM D5185(m)6855ZincppmASTM D5185(m)8288SulfurppmASTM D5185(m)1872								
Manganese  ppm  ASTM D5185(m)  1     Magnesium  ppm  ASTM D5185(m)  0  903     Magnesium  ppm  ASTM D5185(m)  1434      Calcium  ppm  ASTM D5185(m)  1434      Phosphorus  ppm  ASTM D5185(m)  6855      Zinc  ppm  ASTM D5185(m)  828      Sulfur  ppm  ASTM D5185(m)  1872								
Magnesium  ppm  ASTM D5185(m)  903     Calcium  ppm  ASTM D5185(m)  1434     Phosphorus  ppm  ASTM D5185(m)  6855     Zinc  ppm  ASTM D5185(m)  828     Sulfur  ppm  ASTM D5185(m)  1872		-		. ,				
Calcium  ppm  ASTM D5185(m)  1434     Phosphorus  ppm  ASTM D5185(m)  685     Zinc  ppm  ASTM D5185(m)  828     Sulfur  ppm  ASTM D5185(m)  1872		-						
Phosphorus    ppm    ASTM D5185(m)    6855        Zinc    ppm    ASTM D5185(m)    828        Sulfur    ppm    ASTM D5185(m)    1872		-						
Zinc  ppm  ASTM D5185(m)  828     Sulfur  ppm  ASTM D5185(m)  1872								
Sulfur    ppm    ASTM D5185(m)    1872								

Visc @ 100°C cSt

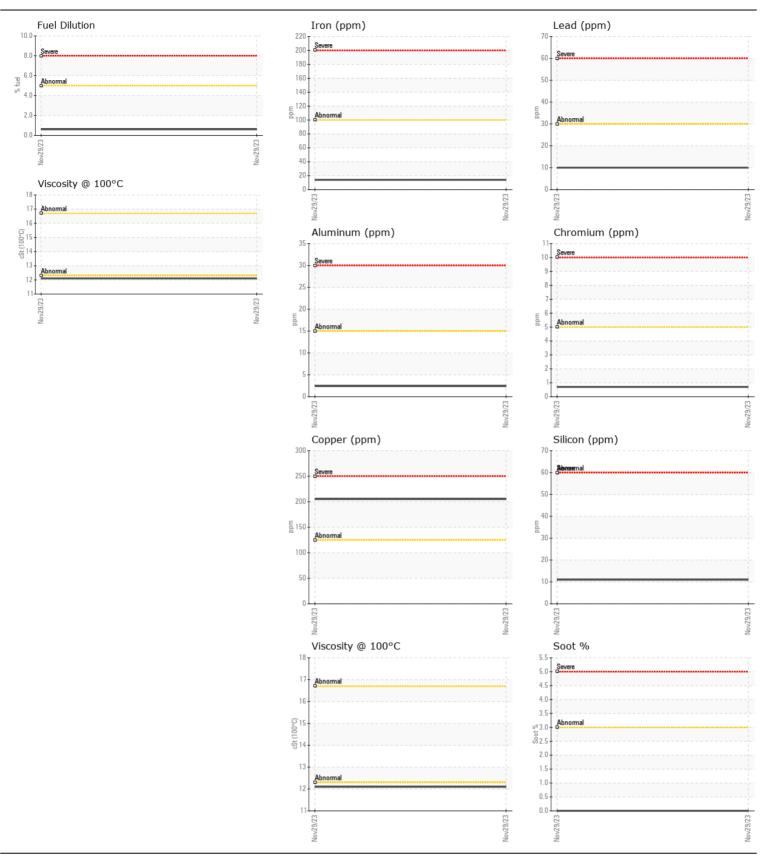
ASTM D7279(m)

12.1

## **CONTAMINATION**

## **FLUID CONDITION**

Submitted By: ?



HUBERT ET FILS INC Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 CALA Sample No. Recieved : 16 Jan 2024 1012 CHEMIN DE PARC INDUSTRIEL : LH0275612 Lab Number : 02608970 BOIS-FRANC, QC Diagnosed : 17 Jan 2024 ISO 17025:2017 Accredited Laboratory : 5710056 Diagnostician : Kevin Marson CA J9E 3A9 Unique Number Test Package : MOBCE (Additional Tests: FuelDilution, PercentFuel) Contact: Service Manager To discuss this sample report, contact Customer Service at 1-800-268-2131. T: Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied. F: